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On the relation between European and American Noctuina.

Dr. A. Speyer gives (Stett. Entom. Zeit., 1875. Jan.—March) the first part of an interesting communication, a report on the general results of which, containing some new and important facts, will perhaps draw the attention of American lepidopterologists to the observation of them in the next summer. The genital appendages were not examined, because the material in Dr. Speyer's hands was not rich enough; he leaves the examination of those parts to other entomologists.

Differences in the form are rarely to be found; most of the differences concern the color, the pattern and the shape of the wings, all of which are most easily affected in local varieties. The palpi and antennæ of the males are the next variable characters.

The most important difference observed by Dr. Speyer consists in a slight and even not generally constant modification in the mixture of the predominant colors.

The predominant colors of the Noctuina are a mixture of black, white and red, also gray and brown, grayish brown or reddish brown. In the American species less red is to be found, and more blackish, in the European less black and more reddish; these colors are to be observed commonly on the abdomen and the hind wings. The brownish gray of the European species is changed in the American species into pure gray or blackish gray. The reddish hue on the gray underside of the wings in many brown species, chiefly near the veins, is in the American species fainter or wanting. The reddish brown of the dorsum and fore wings changes in the American species into grayish, blackish or bluish. The color of the American

species is darker by a larger proportion of black; even the pattern (the lunules and arrow lines) is often more strongly developed in American species by being of a deeper black. The transverse lines and the spots are more visible by having stronger blackish borders.

In the colors made of a mixture of yellow and red, Dr. Speyer observed just the opposite change. In the American species the red is predominant and the black more evanescent (*Orthosia ferrugineoides*, *Hydroecia nictitans*, *Plusia Putnami*, *Brephos infans*).

The difference in the shape of the wings, if present, consists mostly in the American species having broader and shorter wings.

Dr. Speyer believes that the modification in the mixture of the grayish and reddish colors is alone of importance, as he observed it, with few exceptions, in the larger part of the species compared.

He is not certain about the cause which produces the fact, but he believes that the two climates of America and Europe are well represented by the fact. It is generally observed that the color grows darker and more blackish to the north or at higher elevations, but it is not certain whether this is produced by the stronger and colder winter, as in some species (*Vanessa prorsa*, *Polyommatus Phlaeas*) it is the summer generation which is more blackish.

Dr. Speyer considers the climate of Europe as presenting a more insular character, the climate of America a more continental character. The fauna of Siberia should have nearly the same difference from that of Europe as the fauna of America has, but the fauna of Siberia is still too imperfectly known to allow of sure conclusions. The little that is known of it, however, is in favor of Dr. Speyer's remarks. Nearly all the species which he was able to examine came from the eastern part of the Union; perhaps the fauna of the western parts would give a more conclusive result.

A difficulty in the exact comparison of the North American and European species consisted in the fact that most of the American Noctuidae were specimens collected in the field,

most of the European specimens were raised. Raised specimens differ from collected ones mostly by a smaller size, but even the shape of the wings is different; the wings are shorter in relation to the body, the anterior angles more pointed, the indentations of the border deeper and more pointed. Such modifications also change the pattern somewhat, especially the relative situation of the lines and spots. It seems, after all, that only raised specimens should be compared with raised ones, or those caught in the field with caught ones. The very lack of such specimens prevented him from giving a certain opinion upon *Taeniocampa incerta*.

There were fifty-one American species compared.

Twenty are considered identical with European species: *Leucania pallens*, *Agrotis C-nigrum*, *A. plecta*, *A. saucia*, *A. segetum*, *A. ypsilon*, *Aplecta prasina*, *Mamestra trifolii*, *M. dissimilis*, *Hadena lateritia*, *Hydroecia nictitans*, *Euplexia lucipara*, *Dipterygia pinastris*, *Heliothis armigera*, *Scoliopteryx libatrix*, *Amphipyra tragopoginis*, and four species for which the American habitat is still doubtful: *Aporophyla australis*, *Mamestra thalassina*, *Hadena polyodon*, *Eremobia ochroleuca*.

Sixteen are considered surely different species: *Thyatira scripta*, *Acronycta occidentalis (psi)*, *A. brumosa (auricoma)*, *Agrotis obtusa (triangulum)*, *Mamestra nimbosa (nebulosa)*, *M. imbrifera*, *Hadena lignicolorana (sublustra)*, *Cucullia asteroides (asteris)*, *C. intermedia (lucifuga)*, *Erastria musculosa (pygarga)*, *Abrostolis urentis (asclepiadis)*, *Plusia contexta (festucae)*, *P. Putnami*, *Amphipyra pyramidoides (pyramidea)*, *Rivula propinqualis (sericealis)*, *Brephos infans* and var. *Hamadryas (Parthenias)*.

Of the others Dr. Speyer has not yet fixed his opinion. He considers as local varieties, till better information is obtained, six: *Caradrina miranda (lepigone)*, *Taeniocampa incerta*, *Agrotis augur* var. *grandis*, *A. baja*, *Hadena finitima*, *Plusia gamma* var. *California*. In the same manner he considers as different species, nine: *Caradrina Meskei*, *Orthosia ferrugineoides*, *Agrotis clandestina*, *Mamestra subjuncta*, *Hadena devastator*, *Pyrrhia exprimens*, *Plusia brassicae*, *Calpe Canadensis*, *Sarothripus Lintnerana*.

Of seventeen species quoted by Grote as identical with European species, Dr. Speyer has not yet seen specimens.

Of course the detailed exposition for each species can not be given in a short report.

[Much to our regret, since we desire to have no anonymous articles in *PSYCHE*, the author of the above report declined to allow his name to be appended to it. *Ed.*]

Varieties of *Cleora pulchraria* Minot.

This beautiful species stands entirely alone in our fauna, as it is our only representative of a remarkable European genus, of which the most prominent structural characters are the strongly pectinate antennæ of the male and the extruded ovipositor of the female. In this part of Massachusetts the insect appears to be quite rare, and local in its distribution; this is probably due to the fact that the larvæ feed on pine; but I have been able to obtain, in September and October, resting on the trunks of a grove of these trees, behind the Museum of Comparative Zoology at Cambridge, nearly two hundred specimens of the moths. One must naturally expect, in the collocation of so many specimens, to see a certain number of aberrant forms, but I was by no means prepared to find the extraordinary amount of variation actually exhibited. I give a short description of the general plan of the simple ornamentation of the species, in order that the variations from it may be more readily appreciated. The anterior wings are crossed by two distinct black lines, the interior lobate, the exterior sharply dentate between the nervules; between them the discal dot is always seen, very black and conspicuous; the posterior wings have the discal dot, and following it a single median dentate line. The features most liable to vary are as follows, the most inconstant being placed first: the ground color, the structure and proximity of the median lines, the color of the vertex and front, and the shape of the wings. Before mentioning each individual variety, I would remark that no class of variations is confined to either sex; both sexes appear to vary within the same limits and to the same extent.

The ground color, which shows the greatest diversity, in the normal form is white, more or less thickly sprinkled with black